Keeping Agriculture Strong

Prairie Agricultural Machinery Institute
2014-15 Annual Report

40 years

PAMI

Innovative Solutions
for Agriculture and Beyond

About PAMI

The Prairie Agricultural Machinery Institute is:

- An ISO 9001:2008-registered and ISO/IEC 17025:2005-accredited applied research, development, and testing organization providing innovative solutions for agriculture and industry in Western Canada and beyond
- A farm-technology leader serving the agricultural sector by providing independent, third-party farm equipment evaluation and development, spurring technological advances in all areas of traditional farming practices
- A prairie-rooted organization located in Humboldt and Saskatoon, Saskatchewan, and Portage la Prairie and Winnipeg, Manitoba

PAMI's diversified engineering expertise has direct application for other sectors including transportation, defence and security, aeronautics, forestry, oil and gas, and mining. PAMI services include design, development, documentation, prototyping, evaluation of vehicles, machinery, and components, value-added process reviews, pilot plant design and optimization.

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Letters of Transmittal

Honourable Lyle Stewart
Minister of Agriculture
Government of Saskatchewan

Honourable Ron Kostyshyn
Minister of Agriculture, Food and Rural Development
Government of Manitoba

PAMI

Humboldt, Saskatchewan
July 14, 2015

The Honourable Lyle Stewart
Minister of Agriculture,
Government of Saskatchewan

The Honourable Ron Kostyshyn
Minister of Agriculture, Food and Rural Development,
Government of Manitoba

It is my honour to present the annual report of the Prairie Agricultural Machinery Institute for the year ended March 31, 2015.

Respectfully submitted,

Tim Oleksyn
Board of Directors Chair
Prairie Agricultural Machinery Institute

Saskatchewan
Ministry of
Agriculture

July 14, 2015

The Honourable Vaughn Schofield
Lieutenant Governor,
Province of Saskatchewan

Your Honour:

I have the honour to submit the annual report of the Prairie Agricultural Machinery Institute for the year ended March 31, 2015. It includes the financial statements audited by the Provincial Auditor.

Respectfully submitted,

Lyle Stewart
Minister of Agriculture
Government of Saskatchewan

Prairie Agricultural Machinery Institute

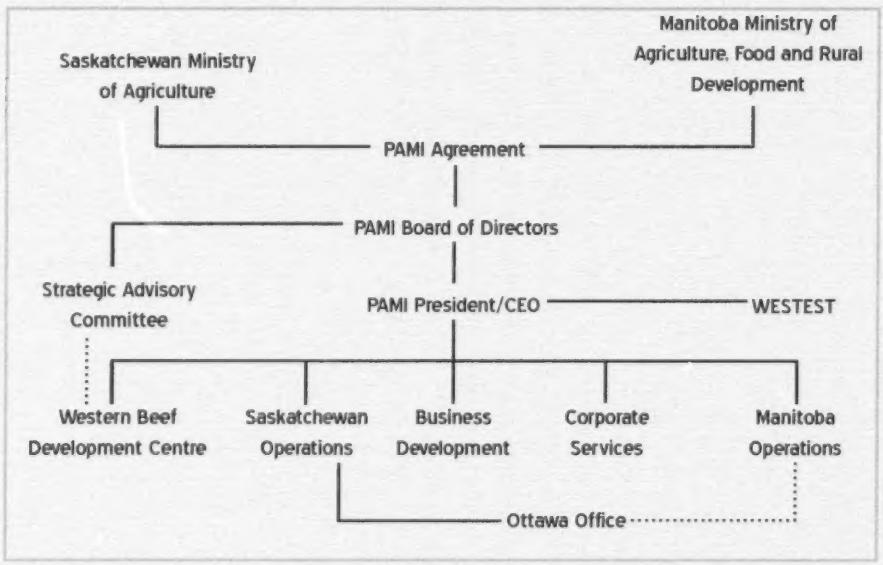
Board of Directors

- **Tim Oleksyn**, Chair and Saskatchewan producer
- **Bill Zettler**, Vice-Chair and Manitoba producer
- **Greg Archibald**, Representative of Agricultural Manufacturers of Canada
- **Leloni Scott**, Representative of Manitoba Agriculture, Food and Rural Development
- **Dr. Abdul Jalil**, Representative of the Saskatchewan Ministry of Agriculture
- **Bryan Hadland**, Saskatchewan producer
- **Boris Michaleski**, Manitoba producer

Corporate Management Team

- **David Gullacher**, President/Chief Executive Officer
- **James Wassermann**, Vice President, Saskatchewan Operations
- **Harvey Chorney**, Vice President, Manitoba Operations
- **Dr. Paul Jefferson**, Vice President, Western Beef Development Centre
- **Joanne Forer**, Vice President, Finance and Administration
- **Kevin Dow**, Vice President, Business Development

PAMI
Innovative Solutions for Agriculture and Beyond



Chairman's Message

With challenge comes opportunity. Uncertain economies abroad, and the fall of oil prices at home, have presented our provinces with new challenges, but agriculture has faced difficulties like these in the past. This kind of hardship breeds innovation. PAMI has led the way in driving agricultural innovation and the industry—particularly beef—is reaping the rewards. Having returned profit to the ranch and farm gate, the spirit of innovation and the collaborative partnerships forged out of adversity remain. Our organization is here to support oil and other industries both through direct participation and with the lessons we have learned from agriculture.

As part of our focus on collaboration, PAMI has been working to lend itself to the decision-making processes of the governments of Saskatchewan and Manitoba. Our working relationships have transformed to one of continuous engagement not only with the ministries of agriculture but other sectors as well, including environment, energy, and industry. We will work with ministers, deputies, directors and program managers in the pursuit of mutual opportunity. Beyond governments, we engage with universities, associations, private enterprises and producers to widen the network, provide better productivity, improve bottom lines and enable technology transfer.

As we look to the future, we celebrate the past as well. This year marks PAMI's 40th anniversary and the Western Beef Development Centre's 10 years within our broader organization. The ties have become a lot closer among researchers, government, students and producers, and the mentorship facilitated by WBDC has been a tremendous reward and accomplishment. Consequently, tools developed in the beef industry have been adapted and adopted in new settings, either on the crop side of agriculture or elsewhere in industry. Finally, the WBDC has enabled renewed emphasis on the role of forages in the province.

Thank you to our outgoing directors. Dr. Tracy Gilson is articulate, engaging, intelligent, and added value every time she spoke at the board table. Jerry Engel is genuine and truthful, and brought all the wisdom he acquired as president of the Agricultural Manufacturers of Canada. Their replacements, Leloni Scott and Greg Archibald, have big boots to fill but with their knowledge and assets, they step into their roles with no learning curve.
In closing, I wish to thank the governments of Saskatchewan and Manitoba for their continued partnership and support. I am humbled to have the trust of the ministers of Agriculture in each province to let me sit as chair of this organization. The people who are on the ground at PAMI—its staff, corporate team, and decision makers—make it one of the best organizations to which I've ever been attached.

Tim Oleksyn
Board Chair
Prairie Agricultural Machinery Institute
Western Beef Development Centre

President's Message

In changing economic times, organizations work hard to find stability. Last year saw us in a position of reduced revenues so we had to make difficult decisions on staff reductions. This year, we have seen the revenue downfall level off. We now have the right size of staff to reprioritize agriculture and get back to our provincial roots.

That being said, we are working to diversify our client base and solidify our project management orientation. A key action we took was to create a Vice President of Business Development role. For us, it was a paradigm-changing focus and it is having a marked effect on how we engage our clients. To fill the role we attracted Kevin Dow who brings agricultural product development and executive experience.

In the past year, WESTEST underwent considerable construction, thanks to access to two major capital grant opportunities. It has resulted in expansion to our technical capabilities and we are reaching more clients than ever.

As we seek to secure our project base, we must also plan for the renewal of our organization and in the past year, PAMI faced some key retirements. Les Hill was with PAMI for 40 years and provided significant leadership to Western Canada in harvester research and development. Sharon and Gord Doepker have retired together and are joined by Dianne Lepage and Ted Bay. To all these long-time employees, we bid a fond farewell.

In the coming year, we are preparing for the retirement of Jim Wassermann. It will be no small task to replace the Vice President of our largest division but PAMI will conduct a thorough search internally, amongst its community and externally.

This year marks the 40th anniversary of PAMI's operation, and we have not only seen huge change in agriculture over that time period but have also played a significant role in it. Knowing the pace of change, we see that the need for adaptation will only increase in the future, but when we look back at all that has been accomplished we are confident we can continue to play a key role. The team at PAMI has a great deal of experience and expertise. The employees are the core of our continued success and we rely on them to shape the organization in the years going forward. In the midst of economic change, we are experiencing turnover. No employee is entirely replaceable but where there is change, there is also renewal. It is from a strong foundation that PAMI meets the coming challenges.

David Gullacher
President and Chief Executive Officer

Year at a Glance

Ag Development

- 28 projects
- $1.8 million value
- $36 million economic impact*
- 190 industry jobs created/maintained*
- Areas of work: crop production power units and implements, livestock transportation and handling

Ag Research

- 85 Projects
- $2.4 million value
- $48 million economic impact*
- Areas of work: crop and livestock production, equipment and systems, manure management, bio-energy feedstock and utilization

Ag Partnerships

- Service on agricultural committees, boards, task forces; exploring new opportunities
- Outreach and information/knowledge transfer through events, news conferences, knowledge systems, website development

Strategy

- Reviewed/renewed strategic plan for 2015/16 and beyond
- Continued to focus on diversifying our client base and targeting new high-value clients
- Hired a VP Business Development to sell our high value experience and expertise
- Align PAMI with the business environment
- Implement the succession plan to sustain PAMI's knowledge core

Industry/WESTEST

- 86 Projects
- $3.8 million value*
- $76 million economic impact*
- 400 industry jobs created/maintained*
- Areas of work: vehicle and machinery performance testing, equipment safety improvements, and security enhancements

Learning and Growth

- 5% down-scaling to better align with markets
- Levered capital equipment procurement to sustain future service opportunities
- Focused organizational development: training and planning

* Economic estimates by PAMI; details available upon request

Strategic Direction

Vision

Innovative solutions for agriculture and beyond.

Mission

To ensure agricultural sustainability and profitability through research, innovation, adaptation, and knowledge transfer. We partner with and serve a broad range of clients to achieve our mission.

Long-Term Objectives

PAMI's five key strategic focus areas are:

1. to increase PAMI's profile, public visibility, and communications
2. to develop new technical initiatives
3. to increase our financial stability and growth
4. to develop human resource strategies to increase our flexibility and efficiency
5. to ensure PAMI stays competitive in the marketplace while maintaining our core competencies and responsiveness

Focus 2014-15

Crops and Grain Innovation

- Machinery adaptation to facilitate new crop introduction
- Increasing productivity through harvest and post-harvest technology enhancement
- Supporting producer decision making and precision farming
- Foster innovation in drying, conditioning, handling and storage
- Overcoming technological obstacles to hemp harvesting and processing

Irrigation and Water

- Engineering support for irrigation technology
- Excess moisture management

Value-add

- assisting applied research and commercialization efforts of value-added technologies
- agronomy research to support technology transfer

Livestock

- tying into the strategies of the livestock sector, always doing research and tech-transfer that will enhance economics and encourage growth
- safeguarding supply through animal identification, safe disposal research of Specified Risk Material and monitoring Porcine Epidemic Diarrhea
- increasing efficiency with labour-saving technologies and optimizing the crops/livestock interface
- enhancing sound environmental and ecological expansion of pork production

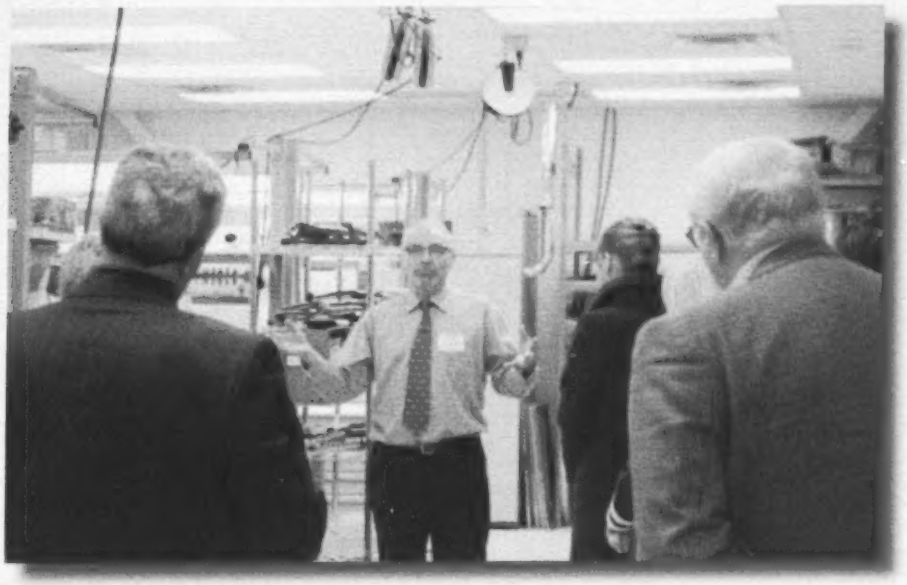
Goals 2015-16

Given the long-term objectives noted above, the following are PAMI's highest priority goals for the next year:

- Continue and expand partnerships in research with all provincial stakeholders
- Build a diversified client base for development work and deepen relationships within these
- Enhance project management and business development protocols

Outreach

Technology transfer is one of PAMI's most important activities. Throughout 2014-15, PAMI held several events and published many reports to engage producers and industry representatives in our organizational learning. Highlights include the WBDC Field Day, information sessions with legislators in Saskatchewan and Manitoba, combine and cow-calf clinics, grazing workshops, podcasts and blogs.



Jim Wassermann shows a group of German parlementarians around PAMI's Humboldt facility on a tour hosted by Hon. Dan D'Autremont, Speaker of the House for the Government of Saskatchewan.

In the past year, we completed the development of our resource library on the PAMI website (pami.ca).

We participated in CANSEC, Canada's premier defence trade show, in Ottawa to showcase PAMI's depth and strength to our defence and security clientele. PAMI also presented at the Agricultural Manufacturers of Canada (AMC) annual convention, the Western Canada Farm Progress Show in Regina along with Saskatoon's Crop Production Show. WBDC maintained its strong presence at the Canadian Western Agribition.

Finally, Jim Wassermann, Vice President Saskatchewan Operations, is the Chair of the Canadian Standards Association (CSA) Technical Committee on Agricultural Machinery. The committee, which consists of manufacturers, researchers, regulators, and producers, maintains approximately 15 CSA standards, while also either adopting or endorsing about 30 applicable international standards that allow designers and engineers to develop new machines that meet national standards and international guidelines.

Dr. Paul Jefferson presents at the Western Beef Development Centre Field Day.

Crop Technology Development

Agricultural machinery development - especially the improvement of combine harvesters - remained a cornerstone of PAMI's activities in 2014-15. Over the last 12 months, PAMI's team designed, built, and tested combine test equipment for manufacturers across North America. PAMI strives to be the go-to place for combine harvester test equipment and our work in research and development is globally noted. Nearly all major farm equipment manufacturers have utilized our services, and we will continue to develop this line of business in the future.

In 2014-15, PAMI designed and built another world-class set of combine test equipment for a client. This equipment combines the very best in collection, separating, cleaning, data acquisition/processing and wireless communication - all in a rugged, field-ready state to provide service as the agricultural manufacturer pursues innovation within their product line of harvester. This brings an indirect benefit ranging in the millions of dollars annually to prairie farmers who buy and use those products.

Tractor field testing was a major part of agricultural machinery development work. The team at PAMI worked with manufacturers to provide benchmarking activities so that manufacturers could understand the performance and capabilities of their tractors under field conditions. PAMI also leveraged its field and tractor test experience in testing pulled implements, and applied it to developing a test method useful across projects, which opened new doors for expanded services. We also worked with several suppliers and manufacturers to ensure performance compatibility between seeding equipment and the other products they deliver.

Future areas of development for PAMI involve designing and building test equipment, providing field test services, and conducting lab tests for agricultural machinery manufacturers. We look to expand our capabilities in the spray technology area, which will involve research in the areas of nozzle efficacy, spray efficacy, drift, and sprayer boom aerodynamics. Our aim is to contribute to the evolution of farm equipment with services that are second-to-none in the world.

Part of PAMI's fleet of combine test eqjuipment.

Four Decades of Harvester Technology Development

A Historical Perspective by Les Hill

PAMI was founded during an explosion of growth in agricultural technology. There were new suppliers and equipment, and PAMI took an early role in combine harvester testing. With a John Deere 6600 Sidehill as a reference machine, we compared the combines that were bestsellers on the prairies. At the time they were "state of the art." Our collection method was a bag opening system on the back of the combines to catch the material off the straw walkers and the cleaning shoe. Our processor separated the bags to clean out the remaining kernels and that's how we measured loss.

Our first evaluation reports established our role as harvester experts because we were the first to publish performance data, and we did it for prairie conditions. The value at the start was for the farmers, but our cooperation with the major manufacturers grew – they were invited to send representatives to the testing process and work alongside our team throughout the season. We gained the manufacturers' trust by resolving issues and PAMI built a reputation on dedication, discipline and cooperation. Along the way, we helped manufacturers explore prairie conditions and the small grains we grow here; their own fields of expertise were the corn and bean crops of the United States.

Over time, harvester technology evolved and the rotary combine created a major shift. Separating and reduced grain damage were the key advantages of the rotary combine because conventional combines were easy to overload. But rotary combines required more power thus bigger engines. This led to high power drive belt development and we observed at PAMI that every incremental change has a domino effect. Meanwhile, conventional combines became wider with single and double swathing windrowers. Through every development, PAMI was there tracking changes and looking for ways to minimize combine loss. Many of the enhancements we spotted translated into business opportunities for local manufacturers and implements dealers – particularly in pick-ups and windrowers, which are a prairie phenomenon.

Now we're in the information age. It began with the electronic loss monitor, which quickly became standard equipment. Next came pick-up speed control and other in-cab controls. Now operators make adjustments on the go, often with little decision-making. GPS-based steering has become popular with straight cutting. The common thread in all these developments is information; automation enabled by this information is providing an unprecedented level of support to the operator.

Our work in harvesting has been productive. We also know that the technology will continue to evolve. With our foundation in science, research and application, the team at PAMI is sure to remain at the forefront, and retain the prairie's place in engineering as design carries on forward.

Minimizing Loss by Harvesters

Since 1990, horsepower on combine harvesters has been on the rise, but more power does not translate into higher efficiency. Combines by the major manufacturers simply are not engineered with Western Canadian growing conditions in mind. Furthermore, when the front end material handling of the harvester outpaces the processing and cleaning systems, grain falls to the ground as grain loss. Finally, spreaders and choppers create grain loss that is difficult to detect as they throw grain far and wide with the chaff. As a result, there is significant loss - PAMI estimates combine loss to total 33 million bushels worth approximately $231 million in Saskatchewan alone.

PAMI has been conducting research into how to recapture what is lost. Producers can optimize their combine settings and practise alternative harvesting techniques. For aftermarket component suppliers there are opportunities to improve operator feedback technology, automation, crop condition analysis, residue management, and crop catcher technology.

A drop pan helps researchers recover and quantify grain that is otherwise lost.

Canola Direct-Cut Harvest System Development

In 2014, PAMI completed Year 1 of a three-year project studying the effectiveness of various canola harvesting systems. The study was funded by Saskatchewan's Agriculture Development Fund, Western Grains Research Foundation and Saskatchewan Canola Development Commission, and compared three different direct-cut header types (draper, rigid auger, and extended knife auger) with windrowing treatments, focusing on header loss. While the study did not find conclusive loss advantages among any of the headers, researchers identified significant effects of crop conditions on combine and header performance: greener plant material caused lower header loss but higher combine loss and increased power usage; more mature plant material caused higher header loss but lower combine loss and power usage. In addition, the study noted that shatter-resistant canola showed a yield advantage over typical canola hybrids, though researchers are cautious about drawing strong conclusions based on such a small sample set of data.

Among the greatest successes of Year 1 of the study, however, was its value in helping researchers to refine their upcoming testing methodologies. Subsequent years of study will require significantly less effort and provide more targeted information. Year 2 tests will use more infield dockage and moisture measurements, and separate header loss testing from combine loss/yield performance testing. Year 2 will also include plans for general operating observations to better measure header adjustment effects.

Applied Agricultural Services

Flax Fibre Harvesting Research

Flax processors in Europe have their sights on Manitoba as a location for producing quality flax fibre. To facilitate overseas interest from flax processors to establish operations in Manitoba, PAMI conducted research on the European style of flax harvesting using French specialty equipment. All three phases of harvesting - pulling, turning, baling - were completed successfully, with observations about the growing conditions (e.g. low clay in the soil content) and adaptations to the baler. Thus it would seem feasible that Manitoba producers could grow flax for European processing. This research was made possible with the assistance of the Government of Manitoba under the Growing Innovation On-Farm program and the Government of Canada's Growing Forward 2 program.

PAMI was successful in harvesting fibre-flax in Manitoba using European equipment.

Porcine Epidemic Diarrhea Virus (PEDv) Prevention

PEDv is a new virus with a high fatality rate among piglets. It has caused significant damage to the United States pork industry and has now made its way into Manitoba.

Spread and Survivability Research

With concerns about how PEDv is transmitted from farm to farm, the Manitoba Livestock Manure Management Initiative and the Manitoba Pork Council turned to PAMI to conduct research on the virus, making the project the first in North America to study PEDv survivability in storage systems. Specifically, researchers studied the virus in the context of Manitoba's style of manure handling and storage. Conducting repeated sampling at two infected lagoons, researchers examined the effects of temperature, pH and total solids. A final report was supplied to the project funders. The stakeholders then communicated implications to pork producers for their operations.

Researchers collect samples at a storage lagoon

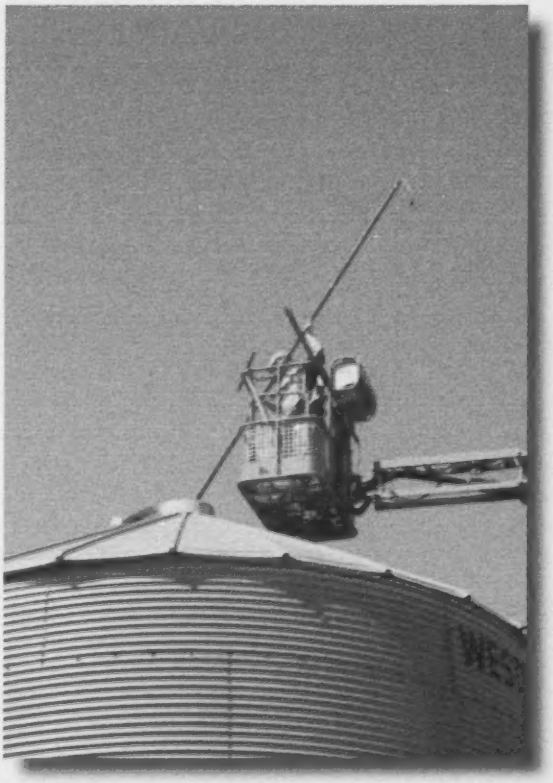
Swine Manure Removal

For biosecurity reasons, trucks and trailers used to transport live pigs are held to a high standard of cleaning. It is a high-labour, water-intensive process. PAMI completed a proof-of-concept evaluation of a wet vacuum system for the University of Saskatchewan. In a demonstration trial, the system developed by PAMI could clean a two-level trailer in 40 minutes with 143L of water.

Summer Canola Storage

Recent bumper crops have led to farmers needing to store their crops during the summer. The challenge with summer storage is spoilage. The key is to gradually begin warming canola in the spring to prevent the condensation that results when cool grain temperatures meet sudden spikes in the air temperature. Through funding from the Canola Council of Canada, PAMI is conducting bin- and bench-scale testing. Three bins of canola were frozen over the winter; with a baseline bin that received no warming, the other two were subjected to different warming techniques including aeration and turning. The research will continue into 2015.

PAMI was presented with a funding opportunity to initiate a capital facility at its Portage la Prairie site. The facility will provide research and development work in grain drying, conditioning, storage, and handling. This initiative will have a collaborative role in the Grain Innovation Hub.



Probes are positioned in the grain bin to monitor conditions

Industry

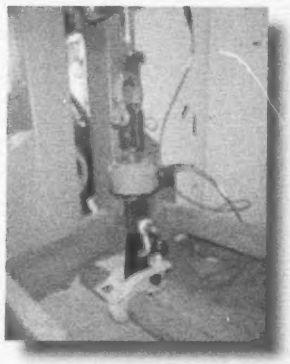
Environmental Technology Verification

PAMI serves as a Verification Organization for clients looking to verify technology performance claims. PAMI assisted GLOBE Performance Solutions on a Canadian Environmental Technology Verification Program claim for a catalytic converter. As a result of successfully meeting fuel savings and emissions standards, VIDA Holdings Corp. received ETV certification and can market its product as an environmentally optimized product.

> "PAMI's team demonstrated not only highly technical competence, but also professionalism and willingness go above and beyond to complete the project."
>
> Mark Heilig
> Director of Operations
> GLOBE Performance Solutions

Oil Tools Testing

Gilliss Oil Tools produces the Bulldog Clamp - a mechanical clamp for picking up oilfield tubes on service or drilling rigs. For safety purposes, PAMI tested the clamp to a full load in excess of five times the manufacturer's rating. The clamp was also tested to a full load in excess of the manufacturer's rating at a 0 degree (horizontal) angle. The test required the clamp to be capable of supporting the applied load without failure. Gilliss Oil Tools earned safety certification as a result of meeting and exceeding the requirements.



Centre-of-Gravity Tests

PAMI worked with Pleasure-Way Industries to perform a centre of gravity test using a calibrated tilt table. If the results fall within the chassis manufacturer's specification, PAMI issues a vehicle test certificate with respect to weight distribution and centre-of-gravity. If the centre-of-gravity is higher than allowed, solutions are discussed with the client and PAMI is able to provide the engineering design and innovation required to modify the vehicle design.

"It's always great doing business with PAMI. You provide us an invaluable service that we would be forced to travel a lot further to get if you were not here. Thanks for taking great care of us."

Ray Rees
Mechanical Engineering Technologist
Pleasure-Way Industries

Pleasure-Way uses the tilt table to undergo centre-of-gravity testing.

Small to Medium Enterprise (SME) Manufacturing Companies

The National Research Council Industrial Research Assistance Program has provided PAMI with funding to increase competitiveness and innovation capability of SME manufacturing companies.

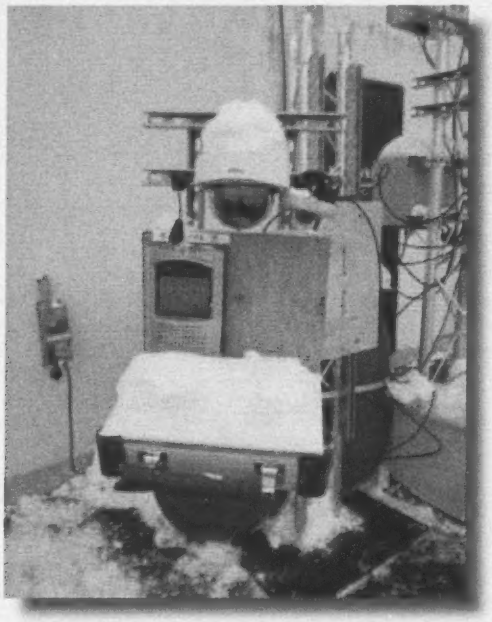
The initiative is meant to build SME awareness of the technological opportunities to accelerate product commercialization, reduce risk, increase profitability, attract investment, contribute to the economy through wealth generation and job creation, and enhance market readiness. Over the past year, PAMI has assisted 75 SMEs.

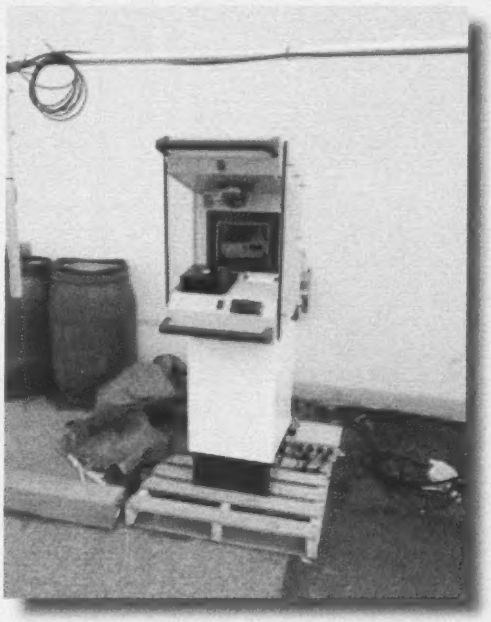
Remote Traveller Processing Kiosk

In 2014-15, PAMI partnered with the Canada Border Services Agency (CBSA) to develop remote traveller processing technology that could be integrated into the CBSA network. Using a kiosk, designed by PAMI, travellers could scan their passports, answer preliminary questions about their entry into Canada, and receive further instructions on how to proceed through Customs. Three kiosks were distributed to CBSA for integration into their operations in April 2015.

"It was a pleasure working with PAMI on our project. PAMI's attention to management excellence and engineering integrity allowed the CBSA to move a project in a matter of months that could have traditionally taken years. We are truly looking forward to our future projects with PAMI."

Tony Mungham
Science and Engineering Directorate
Canada Border Services Agency





From a wooden prototype to the final product, the traveler kiosk came to fruition in a short time span.

The learning from PAMI's interaction with clients like the CBSA is a two-way street. For example PAMI has learned much from its client about remote sensing and RFID technologies. These technologies are highly useful in precision farming and livestock identification protocols respectively.

Bioenergy and Products

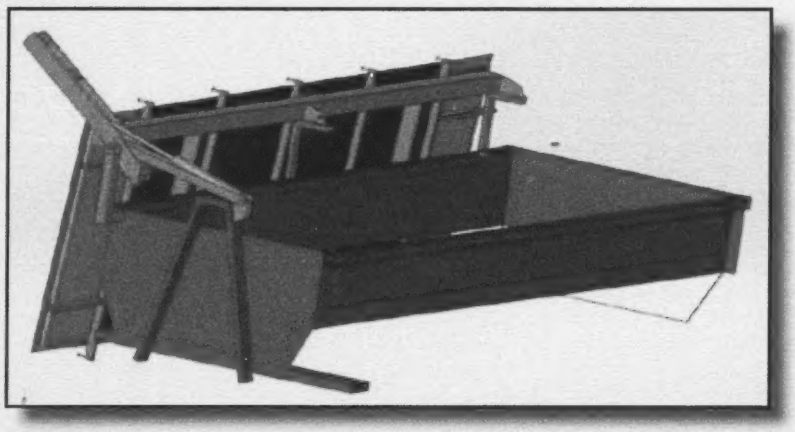
PAMI is a North American leader in researching alternative uses for agricultural products, byproducts and biomass as environment-friendly energy resources and alternatives to petroleum and coal-based products. This applied research examines the most effective forms and technologies for processing biological materials for efficient energy extraction.

The Applied Bioenergy Centre was established by PAMI in 2007 with a mission to play a key role in developing and using bioenergy sources from Canadian agricultural products. In tandem with researching biological materials, PAMI explores and researches existing and potential mechanical technologies to determine the most effective equipment modifications and new designs to harvest, process and efficiently extract energy resources.

Solid State Anaerobic Digestion (SSAD) Demonstration

With past research focusing on the economic feasibility and environmental benefits of using SSAD as a manure management alternative, the ongoing projects in this area include bench-scale trials and evolving the SSAD business case development.

Within the past year, the ABC team has completed the digester lid redesign, the planned pilot-scale trials, and the assessment of biogas utilization for heat at the pilot scale facility. To start the 2014 anaerobic digestion trials, digestate and leachate inoculum were first produced for subsequent trials. Then two additional side-by-side trials were conducted in July and August 2014. The July trials were focused on the effect of leachate recirculation on biogas production from WBDC manure (weekly recirculation compared to no recirculation). The August experiments were aimed at measuring biogas production from bovine carcass mixed with manure (split carcass compared to whole carcass).



Digester with a newly redesigned lid

The ABC team's bench-scale trials continue to validate biogas production from different feedstocks. During 2014-15, two food and yard waste trials were conducted with funding from Yukon Energy. A comparison of leachate recirculation strategies was performed on three mixtures of food and yard waste. They showed positive results with respect to the productive digestibility, and interest has been expressed by urban centres to conduct trials with food waste to assist in meeting sustainable waste management goals.

Biomass Logistics for Farm-scale and District Heating Applications

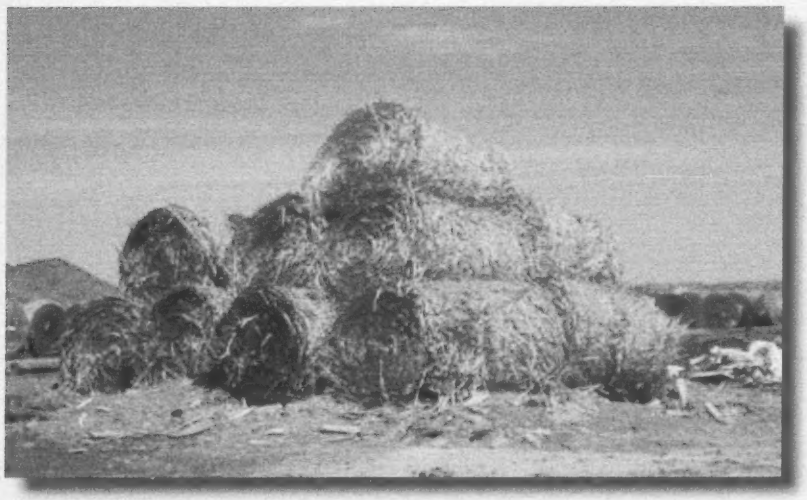
In 2012, PAMI created a calculator to determine whether biomass crops and agricultural crop residues in Saskatchewan could serve as a viable, economically feasible feedstock for the bioenergy, biofuel and bioproduct industries. This year, with funding from Manitoba Agriculture, Food and Rural Development (MAFRD), we adapted the calculator for Manitoba crops and improved the user interface.

Next year, the updated calculator will be used to analyze scenarios and assess logistics' costs for district heating applications in Saskatchewan. This logistical evaluation can be tied to the burner evaluations conducted for the Whole-Bale Biomass Burner evaluation project.

Whole-Bale Biomass Burner Evaluation

With support from MAFRD, the ABC team is conducting a literature review on whole-bale biomass burning systems. This assessment includes a review of available technologies and providers, an overview of construction and operational challenges for solid-fuel heating systems, regulatory issues/concerns, and capital, operating, and logistical costs of whole-bale burning systems. The review targets on-farm users (large shop, poultry barn, grain drying, etc.).

A feasibility assessment is also underway to develop an automatic feeding system for biomass heating equipment. Automatic feeding of feedstock has already been identified as a critical component for making such systems suitable for larger scale installations (e.g., district heating, grain drying). Larger-scale installations will allow users to take advantage of the economies of scale that are required to make biomass burning for heat economically viable.



Old bales are tested for their value as a heat source.

Large-Scale Biochar Demonstration for Agricultural Residues

In November 2014, PAMI completed a large-scale pyrolysis trial with wheat straw and cattails using technology developed by Titan Carbon Smart Solutions in Craik, Saskatchewan. The final report includes information on:

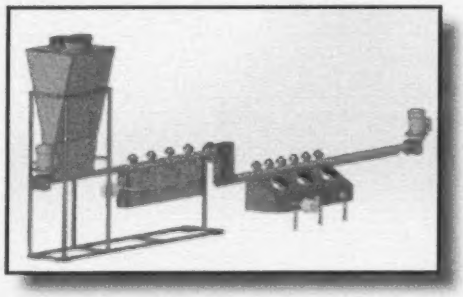
- beneficial and negative impacts of biochar land application
- energy balance, biochar yield, material handling and processing conditions
- physical properties of biochar
- the suitability of existing equipment for biochar handling and land application for recommended application rates
- the suitability of biochar as a compost amendment

The final report was submitted to project stakeholders including Titan, the International Institute of Sustainable Development, and the Canadian Biochar Consortium.

An application of biochar for composting

Bench-Scale Torrefaction Equipment

PAMI completed the construction of "Phase Two" (the torrefaction chamber) in August 2014. The ABC contribution was used for the design and construction of the bench-scale unit. The U of S has been successful at leveraging the ABC funds with Natural Sciences and Engineering Research Council of Canada (NSERC), Agricultural Development Fund (ADF), SaskPower and Hitachi, which is interested in commercializing the technology. The ABC will continue to receive updates on the project results and commercialization plans.



WesternBeef
DEVELOPMENT CENTRE

www.wbdc.sk.ca

Strategic Advisory Committee

Tim Oleksyn (Chair)
Murray McGillivray
Duane Thompson
Brent Griffin
Ross Macdonald
Ryan Sommerfeld
Steve Pylot
Levi Hull
Dr. John McKinnon
Dr. John Campbell
Grant Zalinko
Tracy Evans
Tod Wallace

The Western Beef Development Centre (WBDC) is a leader in collaborative applied research for the beef and forage industries, identifying and communicating opportunities for profitable innovation. Its mission is to collaboratively link lab and land for the competitiveness and sustainability of the cow-calf industry in Saskatchewan.

The Centre is based at Termuende Ranch, which has an expansive land base and facilities, as well as a 300-head cow herd. The staff conduct research, development, and demonstration projects in partnership with the research community, industry and government.

2014-15 Priorities

The top priorities of the Centre have been identified:

1. Enhance the competitiveness of producers by doing research and tech-transfer guided by economic impact.
2. Conduct research that develops programs utilizing annual and perennial forages in forage and livestock systems.
3. Increase forage use efficiency through utilization of extended grazing periods to increase the net value of cow-calf enterprise.
4. Conduct research in cow-calf and stocker programs, which evaluates opportunity feeds such as crop residue, formulated pellets, screenings, ethanol and bio-diesel industry co-products and atypical feeds.
5. Evaluate beef genetic selection and breeding programs which investigate the applicability of using tools such as expected progeny differences (EPDs) and commercially available DNA marker panels/scores of economically important traits.
6. Evaluate management strategies such as effects of early weaning on calf performance, cow and heifer body condition and re-breeding performance.
7. Collaborate on research projects on water, soil, plant quality and nutrient run-off management through evaluation of surface and ground water constituents as they relate to nutrient amounts in water, soil and forage and environmental impact.
8. Collaborate to develop systems costs associated with cow-calf and forage research and development of economic models to evaluate management alternatives to enhance the producer adoption decision process.
9. Evaluate research and technologies worldwide for their applicability to be adopted by producers.

In 2014-15, PAMI marked its tenth year operating the WBDC at Termuende Farm. Over that time span, a Strategic Advisory Committee worked with core staff to shape the direction of research and demonstration projects. Typically WBDC had an average of 19 projects on the go that would last up to four years in duration. In total, the Centre has accumulated over 750,000 animal trial days, all compliant with Canadian Council for Animal Care, and the Verified Beef Production Program. The organization and its advisory committee chooses its research work very strategically, and the potential economic impact arising from projects often ranges from $40 to 65-million annually.

Ten Years of Achievement

- Cost of production analysis
- Feedstock research and crop management
- Forage and grazing research
- Backgrounding performance measurement
- Low-cost winter feeding strategies
- By-product opportunity feeds and beef production
- Livestock watering systems testing
- Water quality and grazing animal productivity
- Time of calving trials
- Application of genetic tests for herd management
- Application of breeding tools and strategies
- Heifer development
- Manure management
- Livestock handling best practices
- Biosecurity measures
- Outreach and communications
- Data management and value to the producer

Young Ranchers Study

WBDC conducted a focus group of ranchers born in 1979 or later, or those raising cattle for five years or fewer, as part of a study funded by the Saskatchewan Ministry of Agriculture's, Agriculture Development Fund (ADF) and the Canada-Saskatchewan Growing Forward Bi-lateral Agreement. This demographic is of strategic interest because it is both a group of growth opportunity but also experiences higher rates of attrition. Interviews were conducted with participants and across the province, and a herd productivity survey was developed and rolled out in collaboration with partners across Western Canada.

The project uses a case study approach to investigate research questions on a deeper level than survey findings. In conjunction with the young rancher interviews is a production survey open to any producer in Western Canada. By gathering production and management practice details for cow-calf producers, we can compare to the young rancher interview and survey responses. To date, 257 online responses and 90 mail-in surveys have been received. This study is ongoing into the 2015-16 year.

Reducing Nitrogen Costs with Short-Rotation Forage Legumes

Short rotation forage legume crops, grown for hay, are effective at fixing nitrogen in the soil, reducing or even eliminating the need for additional nitrogen fertilizer for grain crops like wheat and canola in subsequent years. This is the conclusion of a four-year study conducted by the WBDC, together with the U of S, Wheatland Conservation Area, Northeast Agricultural Research Farm and PAMI's Saskatchewan operations, and funded by the ADF. The project grew a variety of legumes (including alfalfa, red clover, barley, and peas) for two years, followed by a year of wheat then a year of canola—both grown without additional nitrogen fertilizer - measured the nitrogen uptake of the cereal crops, and compared the yields to a control group that used conventional application of nitrogen fertilizer.

The study found that, while the effects of legume rotation varied depending on environment and soil zone, short rotations of forage legumes fixed sufficient levels of nitrogen in the soil to save producers money on nitrogen fertilizer. For example, the nitrogen fertilizer equivalent values for alfalfa ranged from $43 per ha in Swift Current to a high of $460 per ha in Melfort. The study succeeded not only in proving the value of growing forage legumes for hay as part of a crop rotation system, but also provided data that will be useful to producers in planning levels of fertilizer application for cereal crops.

New Cicer Milkvetch Varieties for Fall Pasture

Because of its poor seedling vigour and slow stand establishment, Western Canadian farmers have been slow to adopt cicer milkvetch (CMV) as a forage option, despite numerous benefits, including excellent forage quality, low growth habit with prostrate stems, and no frothy ruminant bloat. In 2013 and 2014, the WBDC evaluated new cultivars of CMV that address these problems through improved seedling vigour and forage yield.

With support from the Saskatchewan Ministry of Agriculture and the ADOPT program, the WBDC conducted research at Lethbridge and Lanigan studying the new varieties, including Veldt and Oxley II cultivars, in comparison to traditional Oxley CMV and a mixture of AC Grazeland alfalfa and Knowles hybrid bromegrass. Stockpiled forage quality at Lanigan was similar between the new and older varieties of CMV, and superior to that of alfalfa. All three varieties of CMV are available to producers for stockpiled forage grazing in the fall.

Economics of Raising Beef Replacement Heifers

Traditionally, cattle producers have used a guideline that recommends breeding heifers when they have reached 60-65% of their expected mature body weight (MBW). To explore possibilities for reducing the cost of developing these heifers, the WBDC conducted a study that compared the performance of heifers and calves produced according to a typical high-gain breeding schedule (62% of MBW) to that of heifers and calves produced with breeding at a more moderate development of heifers (55% of MBW). The study followed both groups of heifers through their first, second, and third pregnancies and found that there was no effect on the heifers' first, second, and third pregnancy rates nor on the performance of their first and second calves. However, the moderate-gain heifers were significantly less expensive to develop than their high-gain counterparts: $212.11 per 200 days vs. $269.27.

Goat Browsing/Grazing to Reduce Brush and Noxious Weeds in Pasture

Encroachment of noxious weeds and woody plants in pastures typically grazed by cattle alone is a problem that is difficult and expensive to treat using methods such as spraying, mowing, or reseeding. In the summer of 2014, WBDC began a study to investigate the possibility of using goat browsing/grazing to combat this encroachment. Preliminary results suggest that goats can provide partial weed and shrub reduction as well as a potential source of increased revenue to producers. However, other methods may be necessary to achieve complete eradication of weeds and shrubs. Research on this project will continue during the summer of 2015.

Flax and Canola as a Fat Source in High-Fat Pellets for Pregnant Beef Cows

In the fall of 2014, WBDC began a project to assess the use of strategically blended feed pellets derived from by-products of off-grade canola or flax as fat sources. The study will track the effect of the high-fat feed pellets on over-wintering pregnant beef cows and their calves using morbidity and mortality, birth weight, growth, and carcass quality as criteria. If successful, the project will provide beef producers with data on lower-cost feed alternatives while also enhancing the viability of other agricultural sectors such as canola, ethanol, oat, pulse, and grain cleaning. Further development and investigation on the project will continue through 2015.

2014 WBDC Field Day

"Congratulations on an extremely successful WBDC Field Day. It shows the value you bring to the industry by the huge number of producers in attendance."

Adrienne Ivey
Evergreen Cattle Company
2014 Outstanding Young Farmer Recipients

WESTEST

Board of Directors

Greg Archibald (Chair), Agricultural Manufacturers of Canada (AMC)
Rhonda Orr, Manitoba Hydro
Pamela Schwann, Saskatchewan Mining Association
Mark Chaney, John Deere
Craig Murray, CNH Global
Damir Gospic, AMC
Leah Olsen, AMC
Russ Klassen, AMC
Geof Gray, AMC

WESTEST is an industrial testing and engineering facility with over two decades of proven, industry-respected service, delivering advanced product engineering and development. This testing organization is owned by a group of five industry associations and firms. PAMI provides all personnel and business functions to the organization under a management contract. Key components of WESTEST are described as follows:

Vehicle Performance Centre (VPC)

The VPC has engine and chassis dynamometers and can evaluate heavy vehicles and their components including engines, drivelines, cooling systems, etc.

WESTEST evaluates the defrosting capabilities of a city bus.

Mechanical Testing Division

The Mechanical Testing Division assists machine developers by load and vibration simulation in its dedicated testing facility. Hydraulically powered, computer-controlled actuators are employed to subject machines or components to actual-scale forces or vibrations. This physical check of theoretical design model can greatly shorten and strengthen product development efforts.

New Technical Capabilities

PAMI and WESTEST, working together, accessed two capital-grant opportunities late in 2013-14 and 2014-15. Together the opportunities represent about $4 million in funding and will equip a number of emerging technical areas in the Saskatchewan and Manitoba facilities. These new opportunities include:

• Mechatronics - developmental services in machinery electro-hydraulics and controls technologies. These will be useful to a wide range of customers including agriculture, industry, and defence. They also represent a significant opportunity as automation and control of machinery is ever-increasing.

• Precision Agriculture - development assistance of Global Positioning Systems (GPS) based precision agriculture systems. This will play a key role in further development of the BIG-4 agricultural production machines. Equipment includes auto guidance equipment as well as the latest precision farming technologies in combines, tractors, and sprayers.

• TerraMechanics - Research and development services for seeding and tillage tools and other ground-engaging elements. This will play a role in tractors and in seeding and tillage equipment within the agricultural sector. It will also be used by industrial and defence clients. Within this initiative, the University of Saskatchewan Soil Bin was acquired, which was slated for discontinuation. The partners recognized the importance of this service to our world-class air seeder manufacturers and have now upgraded the facility.

• Spray Technology - Research and development services for pesticide applications systems and machinery. This equipment base, together with usage agreements for Agriculture and Agri-Food Canada (AAFC) laboratories, pave the way for continuance of spray technology science in Western Canada. Also, developing a business relationship with world-renowned spray scientist, Dr. Tom Wolf, has further added to the expertise, credibility and opportunities in this area.

• Arctic Test Chamber - Augmentation of PAMI/WESTEST's current environmental chamber capabilities. This will be useful to agricultural, industrial, and defence clients. Enhancements under construction will add length to accommodate longer buses. Enhanced cooling capacity will allow the engines to be operated in the chamber. An additional grant of almost $500K late in 2014-15 is allowing the facility to provide extreme cooling even with an engine operating.

• Rapid Prototyping - Automated design and fabrication machines and equipment. This capability will be useful across all sectors. In addition to new fabrication equipment, WESTEST acquired several state-of-the-art modeling software packages, which will work in tandem with our hands-on design and testing services to quickly serve our clients prototyping needs.

• Instrumentation - Enhancements to current capabilities with several new instruments will also be useful across all sectors. Data acquisition is a key core service of WESTEST, and several pieces of new equipment will bolster our capabilities and position WESTEST as a leader in this area. WESTEST can now measure all parameters of importance to machinery manufacturers.

The increased testing capabilities at WESTEST will complement the capital investments that individual manufacturers are making in their own research and development projects. WESTEST conducts neutral, third-party tests to assess prototypes and improve products or processes. As an International Standards Organization (ISO) registered company, WESTEST provides manufacturers with testing services which are not otherwise commercially available, or economically feasible, for manufacturers to own. WESTEST believes that through the modernization of its equipment, it will enable its clients to generate $10 million in sales of newly commercialized products within three years.

Our Projects

The Annual Report showcases only a small sampling of our projects. A more extensive list, but still not exhaustive due to confidentiality requirements, includes the following:

Residue Cart Design Revisions and Optional Build	Testing Alternative Tractor Fuels
Belt Pick-Up Header Hydraulic Suspension Design	Prototype Harness Fabrication, Test Controller to Sprayer Control
Axles Weighing Product and Low Temp Breaking Load	Electrostatic Application Equipment Testing
Loader Arm Design	Engineering Drawing Review
Seat Anchorage Retest	Load Cell Destructive Tests
Opener Cylinder Cycle Tests	Premium Portable Washrooms - Drawing Review
NH3 Fall Applications	Engine Cold Start Testing
Air Seeder Distribution Tests	Forklift Tests
Certify High Clear Sprayer Jack Stands	Plant Fibre Extraction
Material Handling Tests	GPS Verification
Air Cart Capacity Tests	Cylinder Tests
Ambulance Testing	Thermal Blanket Performance Evaluation
Mix-Water Trials	Foundation Review
Low Cost ROPS	Fork Lift Modification for Mining
Combine Test Equipment Service	Grader Blade Exterior Pivot Modification
Blower Component Durability Evaluation	Heavy Vehicle Seat Testing
Recycling Plastic Baler Twine and Net Wrap	Biomass/Municipal Solid Waste Combined Heat and Power Systems
Software Revision to Improve Tare Weight	Biochar for Water Treatment
Air Turbulence Around the Nozzles of an Agricultural Sprayer	Temporary Fencing for Crop Residue Grazing of Ruminant Livestock
Hypothetical Vehicle Performance Verification	CMVSS Seat and Seatbelt Tests
Hydraulic System Analysis	

Our People

This past fiscal year was one in which we saw key retirements from the PAMI group of employees.

Les Hill

Les was one of PAMI's original employees and retired after a 40-year career. He is widely respected as an expert in harvester technology, and tracked its evolution through mechanical modification to the adoption of electronics and information technology.

Though he had the ability to focus on problems and solutions, Les also followed trends in the broader industry with interest and retained a sense of history. As he retires, he will continue to serve PAMI as a part-time consultant so the organization will continue to benefit from his perspective.

Ted Bay

Ted was someone you could count on to keep a project moving forward. He had experience on how to accomplish the most difficult build tasks and had a bent for straight-forward thinking. He was key in assembling the shop team, understanding their strengths, to bring the best to any project. Ted provided PAMI over 35 years of service.

Sharon Doepker

Sharon retired as PAMI's Research Librarian. She was a helpful resource to engineers as they approached the documentation and communication aspects of their work. She was incredibly resourceful in finding information, often leveraging her network to help her coworkers find details that would advance their research.

Internally, Sharon served a lot of committees and her involvement saw her provide leadership to projects, events, safety and training - all managed with great attention to detail. She contributed over 20 years of service.

Gord Doepker

While Sharon was resourceful in finding information, Gordon exemplified this same trait in a handy way. Gordon was the engineers' go-to for every odd job from building boxes to prepping test strips required for mini robot testing. Ask and it would be done, and delivered without hesitation. He brought professionalism and quality to his work for more than 20 years.

Dianne Lepage

Dianne's smiling face and cheerful personality were a part of PAMI's administration team for 25 years. She could be counted on for a good joke and entertained with messages for the staff over the intercom. Dianne's work ethic and ability to get things done were known by all PAMI staff - if a task was given to her, it was done in record time and to the best quality standard. She helped keep PAMI running smoothly and efficiently.

Financial Statements

Management Report

To the Members of the Legislative Assembly of Saskatchewan:

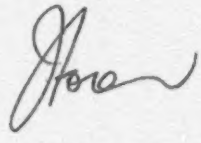
Year Ended March 31, 2015

The accompanying financial statements are the responsibility of the management of the Prairie Agricultural Machinery Institute. They have been prepared in accordance with Canadian public sector accounting standards, using management's best estimates and judgments, where appropriate.

Management is responsible for the reliability and integrity of the financial statements, the notes to the financial statements, and other financial information contained in this report. Management is also responsible for maintaining a system of internal controls, policies and procedures designed to provide reasonable assurance that assets are safeguarded and the accounting systems provide accurate and reliable financial information.

The Board of Directors is responsible for ensuring that management's responsibilities are properly discharged to review and approve the financial statements. The Provincial Auditor of Saskatchewan has audited PAMI's financial statements in accordance with the Canadian generally accepted auditing standards and her report follows.

David Gullacher
President and Chief Executive Officer



Joanne Forer
Vice President Finance and Administration

Independent Auditor's Report

To: The Members of the Legislative Assembly of Saskatchewan

I have audited the accompanying financial statements of the Prairie Agricultural Machinery Institute, which comprise the statement of financial position as at March 31, 2015, and the statement of operations and accumulated surplus, statement of remeasurement gains and losses, statement of changes in net financial assets and statement of cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards for Treasury Board's approval, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

My reponsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Canadian generally accepted auditing standards. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material missatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Opinion

In my opinion, the financial statements present fairly, in all material respects, the financial position of the Prairie Agricultural Machinery Institute as at March 31, 2015 and the results of its operations, its remeasurement gains and losses, changes in its net financial assets, and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Regina, Saskatchewan
July 14, 2015

Judy Ferguson, FCPA, FCA
Provincial Auditor

PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

STATEMENT OF FINANCIAL POSITION
As at March 31

	2015	2014
Financial Assets		
Cash	$ 1,063,328	$ 513,766
Due from General Revenue Fund (Note 3)	2,213,433	1,966,783
Accounts receivable (Note 4)	2,508,815	3,237,997
	5,785,576	**5,718,546**
Liabilities		
Accounts payable and accrued liabilities (Note 5)	1,019,097	780,733
Deferred revenue	698,280	560,718
	1,717,377	**1,341,451**
Net Financial Assets (Statement 4)	**4,068,199**	**4,377,095**
Non-Financial Assets		
Tangible capital assets (Schedule 1)	4,565,861	4,857,883
Prepaid expenses	481,675	267,772
Breeding herd (Note 6)	272,877	224,799
Inventory held for consumption (Note 7)	244,540	243,889
	5,564,953	**5,594,343**
Accumulated Surplus (Note 8)		
Accumulated operating surplus (Statement 2)	9,634,512	9,970,985
Accumulated remeasurement (losses) gains (Statement 3)	(1,360)	453
	9,633,152	9,971,438
	$ 9,633,152	**$ 9,971,438**

Contractual obligations (Note 14)

(See accompanying notes and schedules to the financial statements)

PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

STATEMENT OF OPERATIONS AND ACCUMULATED SURPLUS

For the year ended March 31

	Budget (Note 12)	2015	2014
Revenue			
Provincial Transfers:			
Government of Saskatchewan			
Ministry of Agriculture			
- operating	$ 1,023,000	$ 1,023,000	$ 995,000
Government of Manitoba			
Department of Agriculture, Food and Rural Development			
- operating	260,000	259,682	259,682
- Growing Forward 2	-	-	16,644
	1,283,000	1,282,682	1,271,326
Fee for service	8,221,167	7,769,717	10,084,388
Other income	12,000	630,688	553,926
Interest income	298,500	31,000	34,334
Total revenues	**9,814,667**	**9,714,087**	**11,943,974**
Expenses			
Saskatchewan Operations	6,399,772	6,386,364	8,940,599
Western Beef Development Centre	1,853,121	1,753,953	1,808,884
Manitoba Operations	1,485,640	1,497,985	1,643,603
Corporate Services	456,005	412,258	416,311
Total expenses	**10,194,538**	**10,050,560**	**12,809,397**
Operating deficit before capital grants (Statement 4)	**(379,871)**	**(336,473)**	**(865,423)**
Capital grants from Department of Agriculture, Food and Rural Development	-	-	682,556
Operating deficit for the year (Schedule 2)	**$ (379,871)**	**(336,473)**	**(182,867)**
Accumulated operating surplus, beginning of year		9,970,985	10,153,852
Accumulated operating surplus, end of year (Statement 1)		**$ 9,634,512**	**$ 9,970,985**

(See accompanying notes and schedules to financial statements)

PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

STATEMENT OF REMEASUREMENT GAINS AND LOSSES
For the year ended March 31

	2015	2014
Accumulated remeasurement gains beginning of year	$ 453	$ 1,118
Unrealized (losses) gains attributable to foreign exchange	(1,360)	453
Amounts reclassified to the statement of operations	(453)	(1,118)
Net remeasurement (losses) for the year (Statement 4)	(1,813)	(665)
Accumulated remeasurement (losses) gains end of year (Statement 1)	$ (1,360)	$ 453

(See accompanying notes and schedules to the financial statements)

PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

STATEMENT OF CHANGE IN NET FINANCIAL ASSETS

For the year ended March 31

	Budget (Note 12)	2015	2014
Operating deficit for the year (Statement 2)	**$ (379,871)**	**$ (336,473)**	**$ (182,867)**
(Acquisition) of tangible capital assets	(418,250)	(80,205)	(775,900)
(Acquisition and transfer) of breeding herd	-	(159,600)	(55,350)
Amortization of tangible capital assets	394,300	370,740	406,659
Amortization of breeding herd	47,000	68,219	56,200
Proceeds of disposal of tangible capital assets	-	-	1,714
Proceeds of disposal of breeding herd	-	108,286	44,728
Net loss on the disposal of tangible capital assets	1,200	-	6,206
Net loss on write-offs of tangible capital assets	-	1,487	6,739
Net (gain) loss on the disposal of breeding herd	(25,000)	(64,983)	(5,950)
Net consumption (acquisition) of tangible capital assets and breeding herd	**(750)**	**243,944**	**(314,954)**
(Acquisition) of prepaid expenses	-	(213,903)	(25,580)
(Acquisiton) use of inventory held for consumption	-	(651)	81,288
Net (acquisition) consumption of other non-financial assets	**-**	**(214,554)**	**55,708**
Net remeasurement (losses) gains for the year (Statement 3)		(1,813)	(665)
Decrease in Net Financial Assets		**(308,896)**	**(442,778)**
Net Financial Assets, beginning of year		**4,377,095**	**4,819,873**
Net Financial Assets, end of year (Statement 1)		**$ 4,068,199**	**$ 4,377,095**

(See accompanying notes and schedules to financial statements)

PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

STATEMENT OF CASH FLOWS
For the year ended March 31

	2015	2014
Cash flows from (used in) operating activities:		
Receipts from customers and others	$ 9,187,162	$ 11,377,246
Transfers from Government of Saskatchewan	1,023,000	995,000
Transfers from Government of Manitoba	259,682	276,326
Payments to suppliers and employees	(9,573,113)	(13,295,453)
Interest received	31,000	34,334
	927,731	(612,547)
Cash flows from (used in) capital activities:		
Purchase of tangible capital assets	(80,205)	(775,900)
Purchase and transfer of breeding herd	(159,600)	(55,350)
Proceeds from sale of tangible capital assets and breeding herd	108,286	46,442
	(131,519)	(784,808)
Cash flows from financing activities:		
Receipt of capital grants from Government of Manitoba	-	682,556
Increase (decrease) in cash position	796,212	(714,799)
Cash position, beginning of year	2,480,549	3,195,348
Cash position, end of year	$ 3,276,761	$ 2,480,549
Comprised of:		
Cash	$ 1,063,328	$ 513,766
Due from General Revenue Fund	2,213,433	1,966,783
	$ 3,276,761	$ 2,480,549

(See accompanying notes and schedules to financial statements)

PRAIRIE AGRICULTURAL MACHINERY INSTITUTE
NOTES TO THE FINANCIAL STATEMENTS
March 31, 2015

1. Status of Institute

The Prairie Agricultural Machinery Institute (Institute) is a body corporate operating under *The Prairie Agricultural Machinery Institute Act, 1999*. Its primary purpose is to perform tests and conduct research on machinery, equipment and technologies used in the agriculture, food and other industries. The Institute's testing facilities are located in Humboldt and Lanigan, Saskatchewan and Portage la Prairie, Manitoba.

On wind-up, any net assets will be divided between the Governments of Saskatchewan and Manitoba in proportion to their respective share in the Institute's assets equivalent to the percentage of funding provided to date by each province.

The Institute's objective when managing its capital structure, which consists of net assets, is to ensure adequate funding exists to support its operations and growth strategies. Capital is managed through grant funding and a $700,000 available line of credit. The Institute does not have any long-term debt.

The Institute relies on funding from the Governments of Saskatchewan and Manitoba and on two customers for continued fee for service revenue. These customers account for 40% (2014 - one customer for 55%) of its fee for service revenue and 32% (2014 - one customer for 31%) of accounts receivable.

2. Significant accounting policies

Pursuant to standards established by the Canadian public sector accounting board (PSAB), the Institute is classified as an 'other government organization'. These financial statements are prepared in accordance with Canadian public sector accounting standards. The significant accounting policies are as follows:

a) Financial assets

Financial assets are assets that could be used to discharge existing liabilities or finance future operations and are not for consumption in the normal course of operations. Valuation allowances are used where considered necessary to reduce the amounts reported for financial assets to their net realizable value.

Cash consists of cash on hand, balances with financial institutions, and Due from General Revenue Fund.

Accounts receivable consist of receivables from customers (trade accounts) and other receivables. Receivables are recorded at cost less an allowance for doubtful accounts.

b) Non-financial assets

Non-financial assets are assets held for consumption in the provision of services. These assets do not normally provide resources to discharge the liabilities of the Institute unless they are sold. Tangible capital assets and other non-financial assets are accounted for as assets by the Institute because they can be used to provide services in future periods. Tangible capital assets are recorded at cost less accumulated amortization. Self-constructed assets are recorded at cost, including labour and materials. Amortization is recorded using methods and rates intended to amortize the cost of assets over their estimated useful life.

	Method	Rate
Buildings	declining balance	5%
Equipment, furniture, and vehicles	declining balance	10%
Computer equipment	declining balance	30%
Leasehold improvements	straight line	10%
Computer software	straight line	33%

Prepaid expenses are prepaid amounts for goods or services which will provide economic benefits in one or more future periods.

The breeding herd is recorded at cost less accumulated amortization. This asset is being amortized at 20% declining balance.

Inventory held for consumption consists of calves, bulls and feed. Calves are recorded at net realizable value. Bulls and feed are recorded at lower of cost and net realizable value. Net realizable value is the estimated selling price in the ordinary course of business.

c) Financial instruments

The Institute's financial instruments include cash, Due from General Revenue Fund, accounts receivable, accounts payable and accrued liabilities, and deferred revenue. These instruments are recorded at cost or amortized cost. The carrying amount of these instruments approximates fair value due to their immediate or short-term maturity. Except as otherwise disclosed the Institute is not exposed to significant credit, currency, interest or liquidity risk arising from these financial instruments that may affect the amount, timing and certainty of future cash flows.

d) Government transfers

Government transfers are the transfer of assets from government agencies and are not the result of any exchange transactions, and there is no expectation to repay the amounts in the future or a financial return. Government transfers are recognized in the fiscal year in which events giving rise to the transfer occur, providing the transfer is authorized, any eligibility criteria have been met and reasonable estimates of the amounts can be made.

e) Revenue recognition

The Institute's operations are funded by the Government of Saskatchewan and the Government of Manitoba according to an agreement between the two provinces. Under Order in Council 1800/79, the Institute is not required to return the unused portion of the provincial transfers. The Institute recognizes provincial transfers when the transfer is authorized and eligibility criteria have been met by the Institute.

The Institute recognizes fee for service revenue when the related services are provided. It recognizes fee for service on contracts using the percentage of completion method. It records monies received prior to providing services as unearned revenue.

All other income is recognized when earned.

f) Basis of segmentation

The Institute has adopted the Canadian public sector accounting standards requiring financial information to be provided on a segmented basis. The Institute has been segmented by accountability center. Revenues that are directly related to the costs of the segment have been attributed to each segment.
The segments are as follows:

- **Corporate Services** provides for the administration of the Institute.
- **Saskatchewan Operations** is an applied research, design, development and testing segment. It serves the agricultural, industrial, transportation, military and other market sectors.
- **Manitoba Operations** is an applied research, design, development and testing segment. It serves the agricultural, industrial, transportation, military and other market sectors.
- **Western Beef Development Centre (WBDC)** applies and transfers beef research to improve profitability of the cow/calf sector of the beef industry.

g) Foreign currency translation

Monetary and non-monetary assets and liabilities prior to settlement that are denominated in foreign currencies are translated into Canadian dollars on the balance sheet date at the exchange rate in effect for that date and are recorded in the Statement of Remeasurement Gains and Losses. In the period of settlement, the cumulative amount of the remeasurement gains and losses are reversed in the Statement of Remeasurement Gains and Losses and an exchange gain or loss is recognized in the Statement of Operations and Accumulated Surplus. Revenue and expense transactions are translated at the approximate exchange rate in effect for that date and are included in the determination of net income for the year.

h) Measurement uncertainty

The preparation of financial statements in conformity with Canadian public sector accounting standards

requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and disclosure of contingent liabilities at the date of the financial statements, and the reported amounts of revenue and expenses during the period.

Accounts receivable are stated after evaluation as to their collectability and an appropriate allowance for doubtful accounts is provided where considered necessary. Accounts receivable includes fee for service revenue on contracts based on an estimate of the percentage of completion at the time of measurement. The measurement of materials and supplies are based on estimates of volume and quality. Amortization is based on the estimated useful lives of tangible capital assets. These estimates and assumptions are reviewed periodically and, as adjustments become necessary they are reported in earnings in the periods in which they become known.

The degree of uncertainty associated with the measurement of estimated amounts recognized in the financial statements is not material.

3. Due from General Revenue Fund

Due from General Revenue Fund is money held in a bank account included in the Government of Saskatchewan's Consolidated Offset Bank Concentration arrangement. The Institute receives interest on a quarterly basis from the General Revenue Fund calculated using the Government of Saskatchewan's thirty-day borrowing rate and the Institute's average daily bank account balance. For 2015, the average interest rate was .92% (2014 - 1.02%).

4. Accounts receivable

	2015	2014
Trade accounts receivable	$2,491,009	$3,222,177
Other	17,806	37,415
Allowance for doubtful accounts	-	(21,595)
Accounts receivable	$2,508,815	$3,237,997

Of the trade accounts receivable balance, approximately $265,000 is over 60 days. The Institute expects to fully collect this balance; therefore no provision for credit losses in an allowance account is recorded.

5. Accounts payable and accrued liabilities

	2015	2014
Trade accounts payable	$684,295	$495,167
Wages and other personnel costs	293,684	239,861
Other	41,118	45,705
Accounts payable and accrued liabilities	$1,019,097	$780,733

6. Breeding herd

Cost	2015	2014
Opening balance	$531,761	$570,506
Additions and transfers	159,600	55,350
Disposals	(112,058)	(94,095)
Closing Balance	$579,303	$531,761
Accumulated Amortization		
Opening balance	$306,962	$306,079
Amortization	68,219	56,200
Disposals	(68,755)	(55,317)
Closing Balance	$306,426	$306,962
Net Book Value	$272,877	$224,799

The breeding herd consists of cows that are used for beef research in the operations of the Western Beef Development Centre.

7. Inventory held for consumption

	2015	2014
Calves	$128,383	$89,407
Bulls	72,352	71,538
Feed	43,805	82,944
Total	$244,540	$243,889

Inventory consumed in 2015 was $39,858 and in 2014 was $302,466.

8. Accumulated Surplus

Accumulated surplus represents the net financial assets and non-financial assets of the Institute.

Accumulated surplus is comprised of the following two amounts:

- Accumulated operating surplus from operations, which represents the accumulated balance of net surplus arising from operations of the Institute and allocations as detailed in the table below.
- Accumulated remeasurement gains and losses, which represents the unrealized gains and losses associated with foreign exchange.

Certain amounts of the accumulated operating surplus, as approved by the board, have been designated for specific future purposes. These internally restricted amounts are included in the accumulated operating surplus presented in the Statement of Financial Position.

Accumulated operating surplus from operations is as follows:

	2014	Additions during the year	Reductions during the year	2015
Internally Restricted Surplus:				
Bio-energy and processing	$1,823,692	$ 16,585	$(244,530)	$1,595,747
Government funded capital	2,286,552	-	(201,332)	2,085,220
	4,110,244	**16,585**	**(445,862)**	**3,680,967**
Unrestricted Surplus	**5,860,741**	**92,804**	**-**	**5,953,545**
Accumulated Operating Surplus	**$9,970,985**	**$ 109,389**	**$(445,862)**	**$9,634,512**

9. Related party transactions

This financial statement includes transactions with related parties. The Institute is related to all Saskatchewan Crown agencies such as ministries, corporations, boards and commissions under the common control of the Government of Saskatchewan. The Institute is also related to all Manitoba Crown agencies because of the Government of Manitoba's participation in the operations of the Institute. In addition, the Institute is related to non-Crown enterprises that the Government of Saskatchewan or the Government of Manitoba jointly controls or significantly influences.

Routine operating transactions with related parties are recorded at the agreed upon rates and are settled on normal trade terms. Those transactions and amounts outstanding at year-end are as follows:

	2015	2014
Financial statements category		
Fee for service revenue	$1,679,578	$1,158,221
Other operating expenses	810,293	909,604
Accounts receivable	376,496	1,231,816
Accounts payable and accrued liabilities	131,494	116,849
Unearned revenue	562,568	487,454

In addition, the Institute pays Saskatchewan and Manitoba provincial sales tax on its taxable purchases made in those provinces. Taxes paid are recorded as part of the cost of those purchases.

Other transactions with related parties and amounts due to/from them are described separately in the financial statements and the notes thereto.

10. Pensions

The Institute's employees participate in the Saskatchewan Public Employees Pension Plan, a multi-employer defined contribution pension plan. Pension benefits are based on accumulated contributions and investment earnings. The Institute's responsibility is limited to paying the required employer contributions of 6% of regular salaries. In 2015 the Institute made contributions of $301,260 (2014 - $338,676) which are funded from current operations.

11. Financial risk management

Risks have been identified and the Institute ensures that management monitors and controls them. The significant financial risks to which the Institute is exposed are:

Credit risk

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation. The Institute is exposed to credit risk on the accounts receivable from its customers. In order to reduce its credit risk, the Institute applies sound credit practices. The Institute incurred insignificant bad debt expense during the past five years.

Market risk

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market price. Market risk is comprised of currency risk and interest rate risk.

Currency risk

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The Institute is exposed to currency risk on its cash, accounts receivable, and accounts payable. The Institute does not use any derivative financial instruments to alter the effects of this risk.

The Institute enters into transactions denominated in United States currency for which the related revenues, expenses, accounts receivable and accounts payable balances are subject to exchange rate fluctuations. As at March 31, 2015 the following items are denominated in United States currency (CAD converted at $1 USD - 1.2683 CAD (2014 - 1.1053)):

	2015	2014
Cash	$39,868	$44,504
Accounts payable	96,203	39,825

Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Institute's exposure to interest rate risk is limited to the line of credit and trade payables. The interest rate on this debt is variable; therefore, the Institute may face increasing interest costs in an increasing interest rate market.

Liquidity risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities. The Institute's exposure to liquidity risk is dependent on the receipt of funds from its operations, external borrowings and other related sources. Funds from these sources are primarily used to finance working capital and capital expenditure requirements, and are considered adequate to meet the Institute's financial obligations.

12. Budget

The budget for 2014/2015 was approved by the Board on April 11, 2014. The budget figures are presented for comparison purposes.

13. Adoption of new accounting standards

PS 3260 Liability for Contaminated Sites

Effective April 1, 2014, the Institute adopted the new PS3260 Liability for Contaminated Sites standard. This section establishes standards on how to account for and report a liability associated with the remediation of contaminated sites. Contaminated sites are a result of contamination being introduced into air, soil, water or sediment of a chemical, organic or radioactive material or live organism that exceeds the maximum acceptable concentrations

under an environmental standard. A liability for remediation of contaminated sites is recognized when all of the following criteria are met:

- an environmental standard exists
- contamination exceeds the environmental standard
- the Institute directly responsible or accepts responsibility
- the Institute expects that future economic benefits will be given up and
- a reasonable estimate of the amount can be made.

The adoption of the new PS3260 standard has not resulted in any changes to the measurement and recognition of liabilities in the Institute's 2015 financial statements.

14. Contractual obligations

The Institute has committed to provide future services to several research and development projects. At March 31, 2015, the value of these services totals $165,910 (2014 - $170,100).

Lease terms on vehicles, equipment and land range from 2 to 5 years. In 2015, these lease costs totalled $105,307 (2014 - $79,021). The Institute is required to make the following minimum lease payments on these leases:

2016	$ 55,530
2017	49,601
2018	25,604
2019	-
2020	-

Under contract with Western Canada Testing Inc. (WESTEST), the Institute manages and operates WESTEST under the direction of WESTEST's Board of Directors. WESTEST retains an equipment utilization fee on WESTEST projects with the balance of the project revenue due to the Institute. During the year, the Institute earned fee for service revenue of $391,018 (2014 - $341,061) from WESTEST. At year-end, accounts receivable includes $389,446 (2014 - $385,287) due from WESTEST.

PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

SCHEDULE OF TANGIBLE CAPITAL ASSETS
As at March 31

	Asset Cost					Accumulated Amortization					Net Book Value 2015	Net Book Value 2014
	Opening Balance	Additions	Disposals	Write-downs	Closing Balance	Opening Balance	Amortization	Disposals	Write-downs	Closing Balance		
Land and Improvements	$ 279,841	$ -	$ -	$ -	$ 279,841	$ -	$ -	$ -	$ -	$ -	$279,841	$279,841
Buildings	5,378,780	7,296	-	-	5,386,076	3,083,295	115,139	-	-	3,198,434	2,187,642	2,295,485
Equipment and Furniture	3,969,598	19,868	-	-	3,989,466	2,020,892	196,858	-	-	2,217,750	1,771,716	1,948,706
Vehicles	568,387	30,868	-	-	599,255	382,592	21,667	-	-	404,259	194,996	185,795
Computer Equipment	409,924	6,703	-	(25,737)	390,890	363,260	15,564	-	(24,250)	354,574	36,316	46,664
Leasehold Improvements	171,246	-	-	-	171,246	78,400	17,124	-	-	95,524	75,722	92,846
Computer Software	71,881	-	-	-	71,881	63,335	4,388	-	-	67,723	4,158	8,546
Assets Under Construction	-	15,470	-	-	15,470	-	-	-	-	-	15,470	-
Total	$10,849,657	$ 80,205	$ -	$ (25,737)	$10,904,125	$5,991,774	$ 370,740	$ -	$ (24,250)	$6,338,264	$4,565,861	$4,857,883

PRAIRIE AGRICULTURAL MACHINERY INSTITUTE

Schedule 2

SCHEDULE OF SEGMENT DISCLOSURE
For the Year Ended March 31

	Corporate Services		Saskatchewan		Manitoba		Western Beef Development Centre		Total	
	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
Revenue										
Provincial Transfers:										
Government of Saskatchewan										
Ministry of Agriculture										
- operating	$ 320,000	$ 320,000	$ 310,000	$ 310,000	$ -	$ -	$ 393,000	$ 365,000	$ 1,023,000	$ 995,000
Government of Manitoba										
Department of Agriculture,Food and Rural Development										
- operating	30,000	30,000	-	-	229,682	229,682	-	-	259,682	259,682
- Growing Forward 2	-	-	-	-	-	16,644	-	-	-	16,644
	350,000	350,000	310,000	310,000	229,682	246,326	393,000	365,000	1,282,682	1,271,326
Fee for service	-	-	5,691,760	8,235,997	1,131,060	1,041,261	946,898	807,130	7,769,718	10,084,388
Interest income	14,322	12,501	16,677	21,254	-	-	-	579	30,999	34,334
Other income	203	11	64,664	76,666	17,465	15,230	548,356	462,019	630,688	553,926
Total Revenues	**364,525**	**362,512**	**6,083,101**	**8,643,917**	**1,378,207**	**1,302,817**	**1,888,254**	**1,634,728**	**9,714,087**	**11,943,974**
Expenses										
Personnel	686,508	774,017	3,836,892	4,685,840	812,618	953,791	789,559	744,549	6,125,577	7,158,197
Fee for service direct costs	-	-	1,102,486	2,310,457	202,793	192,621	428,221	376,377	1,733,500	2,879,455
Administration	83,663	107,885	610,592	774,189	226,659	218,352	10,643	260,463	931,557	1,360,889
Operating	33,944	45,186	273,731	429,383	79,928	100,744	305,531	249,364	693,134	824,677
Administration fee (recovery)	(400,712)	(521,375)	295,619	427,054	57,748	53,520	47,345	40,801	-	-
Amortization	5,000	5,000	217,050	241,648	94,041	100,549	122,868	115,661	438,959	462,858
Lease - land and equipment	1,860	1,865	38,700	37,213	23,348	22,802	41,399	17,141	105,307	79,021
Exchange loss	-	133	-	16,312	-	484	-	42	-	16,971
Loss on disposal of assets	-	-	637	12,205	850	740	4,347	2,083	5,834	15,028
Honoraria	1,995	3,600	-	-	-	-	4,040	2,403	6,035	6,003
Bad debt	-	-	10,657	6,298	-	-	-	-	10,657	6,298
Total expenses	**412,258**	**416,311**	**6,386,364**	**8,940,599**	**1,497,985**	**1,643,603**	**1,753,953**	**1,808,884**	**10,050,560**	**12,809,397**
Surplus (deficit) before capital grants	**(47,733)**	**(53,799)**	**(303,263)**	**(296,682)**	**(119,778)**	**(340,786)**	**134,301**	**(174,156)**	**(336,473)**	**(865,423)**
Capital grants	-	-	-	-	-	682,556	-	-	-	682,556
Surplus (deficit) for the year	**$ (47,733)**	**$ (53,799)**	**$ (303,263)**	**$ (296,682)**	**$ (119,778)**	**$ 341,770**	**$ 134,301**	**$ (174,156)**	**$ (336,473)**	**$ (182,867)**

PAMI Corporate Services
Box 1150, 2215 8th Avenue
Humboldt, SK S0K 2A0
P: 306-682-2555, 1-800-567-PAMI
F: 306-682-5080
pami@sasktel.net

PAMI Saskatchewan
P: 306-682-5033
F: 306-682-5080
humboldt@pami.ca

PAMI Manitoba
Box 1060, 390 River Road
Portage la Prairie
P: 204-239-5445
F: 204-239-7124
portage@pami.ca

WBDC Main Office
Box 1150, 2215 8th Avenue
Humboldt, SK S0K 2A0
P: 306-682-3139
F: 306-682-5080
info.wbdc@pami.ca

WBDC Research Ranch
Box 700
Lanigan, SK S0K 2M0
P: 306-365-3366
F: 306-365-3374
humboldt@pami.ca

www.pami.ca
www.wbdc.ca
www.westest.ca

PAMI Corporate Services
Box 1150, 2215 8th Avenue
Humboldt, SK S0K 2A0
P: 306-682-2555, 1-800-567-PAMI
F: 306-682-5080
pami@sasktel.net

PAMI Saskatchewan
P: 306-682-5033
F: 306-682-5080
humboldt@pami.ca

PAMI Manitoba
Box 1060, 390 River Road
Portage la Prairie
P: 204-239-5445
F: 204-239-7124
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Box 1150, 2215 8th Avenue
Humboldt, SK S0K 2A0
P: 306-682-3139
F: 306-682-5080
info.wbdc@pami.ca

WBDC Research Ranch
Box 700
Lanigan, SK S0K 2M0
P: 306-365-3366
F: 306-365-3374
humboldt@pami.ca

www.pami.ca
www.wbdc.ca
www.westest.ca

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